

Bandolier may be getting old and crotchety, but, increasingly, being told the obvious raises the blood pressure. That, perhaps, reflects the fact that we know that there is so much we don't know, or don't know well enough, that telling people the obvious seems a real waste of time.

Here's a good one for you, from a recent issue of JAMA. It is a paper [1] on factors associated with deaths and injuries from hot-air balloon crashes. The paper says that "in univariate analysis, collision with the ground was the most significant predictor of fatality or serious injury ($P < 0.01$)."

Well, fancy that! Most *Bandolier* readers would have predicted this result. What, though, about those things that are unprovable, or for which there is no proof, so many of which seem to appear round the fringes of healthcare?

***Bandolier's* law of inverse claims**

A quick screening test to determine whether or not to read about a new product or service is offered by this law. It states that the more benefits claimed for a product, the less likely any of them are to be true. Take, as an example, an E-mail received for Ericson's Alkali-Mine Coral calcium from Okinawa. The E-blurb states that "over 150 diseases are linked to ionic calcium deficiency", and that "reports from users" show "total or partial relief from symptoms of"..... The list starts with arthritis and goes on to include athlete's foot and most other ailments.

Messenger not the message

Then look at a chap called Andrew Weil, who made the cover of Time Magazine as a "Medicine Man" [2]. Much more difficult this, as Dr Weil advises lots of good things - eating sensibly, walking, making time for relaxation, avoiding coffee, losing weight. He also advises using herbal remedies - and we know that some, like St John's Wort and Gingko do indeed work.

Here it is the packaging that is important. The same message about exercise, diet, and lifestyle change probably plays less well in Scunthorpe on a wet Tuesday in January. So you will not be surprised to hear that Dr Weil practises in Arizona.

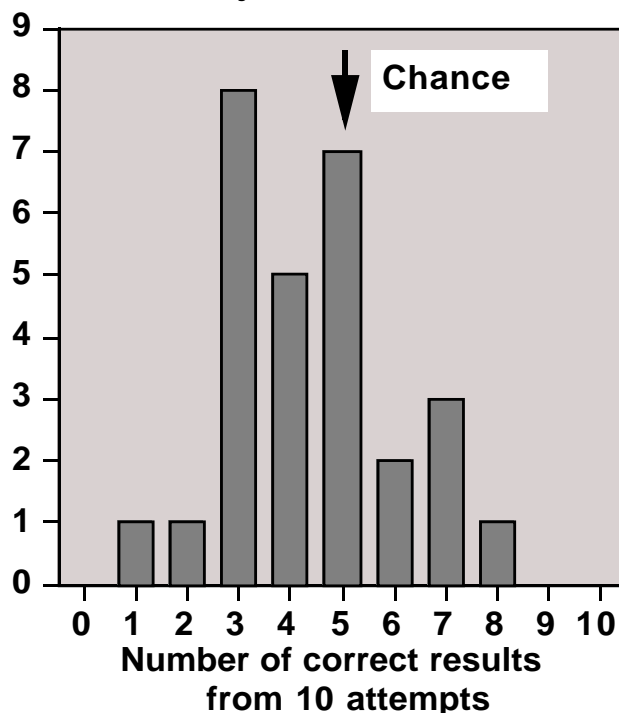
Debunking the absurd

Imagine for a moment that *Bandolier's* editor comes up to you (or, worse, a sick patient) and says that he can see that your aura is disturbed. He then says that for a small fee, and without even touching you, he can put it right so that you will be more in balance with yourself. Money passes in one direction, and hands are waved airily in the other, and the transaction is complete. This technique of "therapeutic touch" is claimed to do things from helping children make sense of the world to helping to bring some dead back to life [3].

Therapeutic touch has been debunked in a superb paper in JAMA [3]. There are three good things about this paper. One is the background explanation of the "theory" behind the practice, another is the systematic review of the literature which shows that "at most only 1 of the 83 {studies} may have demonstrated independent confirmation of any positive study", and the third is a terrific randomised study by a nine year old girl showing that the practitioners cannot substantiate their claims.

28 Therapeutic Touch practitioners confident of correctly identifying the aura from a hand

Number of subjects



In this issue

Chlamydia update	p. 2
Anticonvulsants and head injury	p. 4
Lifestyle and hypertension	p. 5
Psoriasis treatments	p. 6
Homeopathy for postoperative ileus	p. 7
Moorhens and mallards	p. 8

*The views expressed in **Bandolier** are those of the authors, and are not necessarily those of the NHSE Anglia & Oxford*

In the RCT, 21 practitioners were challenged to "sense the aura" from the girl's hand. They sat with hands extended through a screen with palms up. The girl tossed a coin to determine which hand was going to be tested, then put her hand 5-10 centimetres above one of the practitioner's.

All practitioners were confident or very confident that they could pass the test with flying colours. By chance they should have guessed 50% correctly. They actually averaged 47% (Figure). To do significantly better than chance they had to be right at least 8 of 10 times. Only one ever achieved this, then fell back to chance on re-test.

Warp and west

Process and outcome are interwoven like warp and weft. We may be sceptical about the benefits of interventions that promise relief for 100 diseases, but many people are impressed by these claims and the confident style in which they are made. Sales of vitamins and other health store products are booming in Western countries.

Avoid fuzzy thinking

In making evidence-based decisions we have to be more sceptical. If there is no proof that an intervention works, then the norm should be that it is not used. Claims that it does no harm should be treated with healthy scepticism. Adverse effects of treatments that do much good are treated with proper seriousness - oral contraceptives and rare thrombosis as one example. If we don't know that something works, the chances of knowing that it does *not* do harm are small.

Indeed, it is worse than that. The logic, surely, is this: if we don't know that an intervention does any good, and we don't know that the intervention doesn't do any harm, then the only course of action open to us is *not* to use it until it is at least *proven* to be safe.

Where an unconventional approach can be shown to work, then we have to treat those claims with appropriate seriousness. Many herbal remedies are effective, for instance and another example later in this issue is a systematic review of homeopathic interventions which show positive effects after abdominal surgery. Healthy scepticism should not include a closed mind.

References:

- 1 CT Cowl, MP Jones, CF Lynch et al. Factors associated with fatalities and injuries from hot-air balloon crashes. JAMA 1998 279, 1011-4.
- 2 J Kluger. Mr Natural. Time 1997 May 19, 44-51.
- 3 L Rosa, E Rosa, L Sarner. A close look at therapeutic touch. JAMA 1998 279:1005-10.

The *Bandolier* conference on Chlamydia was really good. Copies of the conference report will be available soon and can be obtained from Eileen Neail by fax on 01865 226978. They will be posted on *Bandolier's* Internet site. But more information becomes available every month, with some good thinking on cost-effectiveness recently [1].

Screening

Because Chlamydial infection is often asymptomatic, especially in women, approaches to treating it are often on a population basis; this amounts to screening. Screening has had a bad press, partly because screening programmes (of which there are over 300 operating in the UK) have often been started without the exhaustive thought and testing needed to show that they work and can be effective and cost-effective.

The effectiveness of a screening programme depends on a combination both of test accuracy and therapeutic effectiveness. But screening is not straightforward. It has been said that all screening programmes do harm; some can also do good. And screening programmes are just that - a programme rather than just a test or just a treatment, and as programmes they need good management to be effective and efficient in the long term.

One way of approaching screening is to use evidence from various sources to model effectiveness and cost-effectiveness on a real population. A study on 7,700 women in Baltimore does just that [1], and is a useful read for anyone contemplating Chlamydia screening, or any screening programme, come to that.

Cost-effectiveness study

Using information from the literature, and from 7,700 asymptomatic women attending family planning clinics in Baltimore, researchers calculated the costs of several putative screening strategies and the costs of the effects of Chlamydial infection. These include pelvic inflammatory disease, ectopic pregnancy, pelvic pain and infertility for the women, urethritis or epididymitis for their male partners, and conjunctivitis and pneumonia for children they bear.

The screening strategies examined were:

- ◆ No screening
- ◆ Screening using CDC criteria (mucopurulent cervicitis, all women <20 years, women 20-23 years not using barrier contraceptives or with new sex partner in last 3 months, and older women not using barrier contraceptives **and** with new sex partner in last 3 months)
- ◆ Screening women <30 years
- ◆ Screening all women

The testing strategy involved testing with polymerase chain reactions (PCR) of cervical swabs or urine. These new DNA tests have very high sensitivity and specificity, with likelihood ratios often of over 100. Treatment was with doxycycline for seven days.

Results

The total cost of the medical consequences of Chlamydial infection in the 7,700 asymptomatic women was \$676,000 (in 1995 dollars). All the screening strategies reduced the total costs since costs of the screening

Cost-effectiveness of screening strategies based on 7,700 women in Baltimore

Screening method	Screening costs (\$)	Medical costs (\$)	Total cost (\$)	Number of PID cases	PID cases prevented
No screening		676,000	676,000	152	
CDC criteria	55,000	390,000	446,000	88	64
Women < 30 years	75,000	297,000	372,000	67	85
Universal screening	120,000	270,000	391,000	61	91

strategies were more than offset by reduced costs of the medical consequences of infection (Table). The most cost-effective strategy was age-based screening of all women under 30 years.

Sensitivity analyses in this study showed that screening was cost effective at any prevalence of Chlamydia in asymptomatic women of 1.1% or above, and that at prevalence of 11% or above universal screening became most cost-effective. Other sensitivity analyses showed that the conclusions were robust with regard to many different variables.

Credible?

There are several additional pieces of evidence which help to make the results of this study credible. Firstly the PCR tests have been shown to be excellent in a number of different studies, so reliable and robust testing is possible on urine specimens.

Treatment is effective. Both a single dose of azithromycin and

Outcome	Azithromycin %	Doxycycline %
Clinical cure	91	93
Microbial cure	93	96
Adverse effects	18	19

a seven day regimen of doxycycline give high rates of cure above 90% in nine randomised trials (Table, *Bandolier* 28). But drop-outs were high, and this may reflect the population of people inevitably included in such trials (younger, STD patients) or in part non-compliance with seven day regimens of doxycycline [2,3]. Single-dose azithromycin may give better results without much affecting the overall costs.

The prevalence of Chlamydial infection in women in the UK has been the subject of a literature review [4]. Figures ranged from about 2 to 12%, with a weighted mean average of 5.3% (Figure). Methods used varied, and probably, if anything, underestimated prevalence, but UK prevalence seems not to be much different from that in the USA [4].

Most important is that we now have a randomised trial of screening which shows that it can be effective [5]. In it, 2600 women at high risk (7%)(age ≤24; black race; nulligravid; douching; ≥2 sexual partners) were randomised to screening

plus treatment, or usual care; patient characteristics were similar at baseline. In the following 12 months, PID occurred in 9/1009 women screened & treated and 33/1598 women given usual care. This is an NNT of 85 (95% CI 48 - 375), with a reduction of about 60% in relative risk.

Comment

Screening is a complex issue, even when, as here, it appears to produce overall healthcare savings of \$50 per woman screened. Muir Gray's book [6] is instructive when considering screening, as well as being a good read generally. In any complex organisation, and especially for screening programmes, performance is the key, and it depends on a number of factors:

$$\text{Performance} = \frac{\text{Motivation} \times \text{Competence}}{\text{Barriers}}$$

A good strategy is to assume people are well motivated, to ensure that they have the necessary skills and to knock down the barriers which can hinder performance. Those barriers include inaccessible information, information overload, information irrelevance and insufficient time.

Prevalence (%) of chlamydial infection in UK general practice (various definitions)



References:

- 1 MR Howell, TC Quinn, CA Gaydos. Screening for Chlamydia trachomatis in asymptomatic women attending family planning clinics. *Annals of Internal Medicine* 1998 128:277-84.
- 2 AC Haddix, SD Hillia, WJ Kassler. The cost effectiveness of azithromycin for Chlamydia trachomatis infections in women. *Sexually Transmitted Diseases* 1995 22:274-80.
- 3 AP Lea, HM Lamb. Azithromycin. A pharmacoeconomic review of its use as a single-dose regimen in the treatment of uncomplicated urogenital Chlamydia trachomatis infections in women. *Pharmacoeconomics* 1997 12:596-611.
- 4 T Stokes. Screening for Chlamydia in general practice: a literature review and summary of the evidence. *Journal of Public Health Medicine* 1997 19:222-32.
- 5 D Scholes, A Stergachis, F Heidrich et al. Prevention of pelvic inflammatory disease by screening for cervical Chlamydial infection. *New England Journal of Medicine* 1996 334:1362-6.
- 6 JA Muir Gray. Evidence-based Healthcare - how to make health policy and management decisions. Churchill Livingstone 1997. ISBN 0-443-05721-4

ANTICONVULSANTS IN HEAD INJURY

Seizures after head injury are not uncommon. Seizures may cause secondary brain damage, and this has been the main rationale for the use of prophylactic anticonvulsant drug use in the management of head injury. A systematic review [1] sheds new light on the usefulness of such therapy.

Studies

Using extensive searching strategies, together with unpublished information from authors, ten randomised studies were found, predominantly involving adults. Anticonvulsants used were phenytoin, carbamazepine and phenobarbitone compared with placebo or no treatment, over periods mainly of one to two years. The studies used large numbers (all but two randomised more than 100 patients), but reporting quality was generally low.

Results

In all there was information on 2036 randomised patients. Anticonvulsants reduced first week seizures significantly, by 70%, with a relative risk of 0.3 (95% CI 0.2 to 0.5). The NNT was 10 (95% CI 7 to 16). In controls 14% of patients had a seizure in the first week, compared with 5% of patients taking an anticonvulsant.

By contrast (Figure), late seizures (after one week) were not affected (14% of patients with control had a seizure, compared with 13% with anticonvulsant), nor were there significant differences in death or neurological disability. There seemed to be little difference in effectiveness between carbamazepine and phenytoin, though on limited trials. Skin rashes were estimated to occur in four of 100 patients.

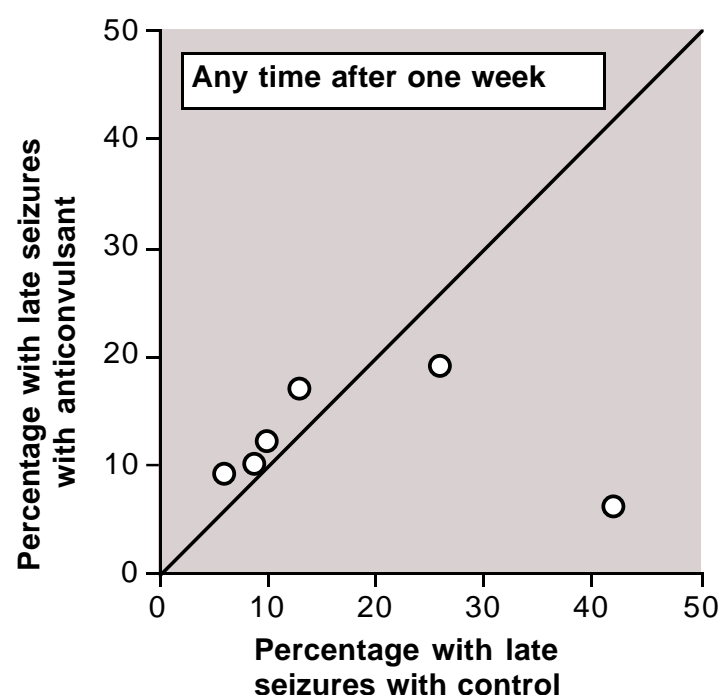
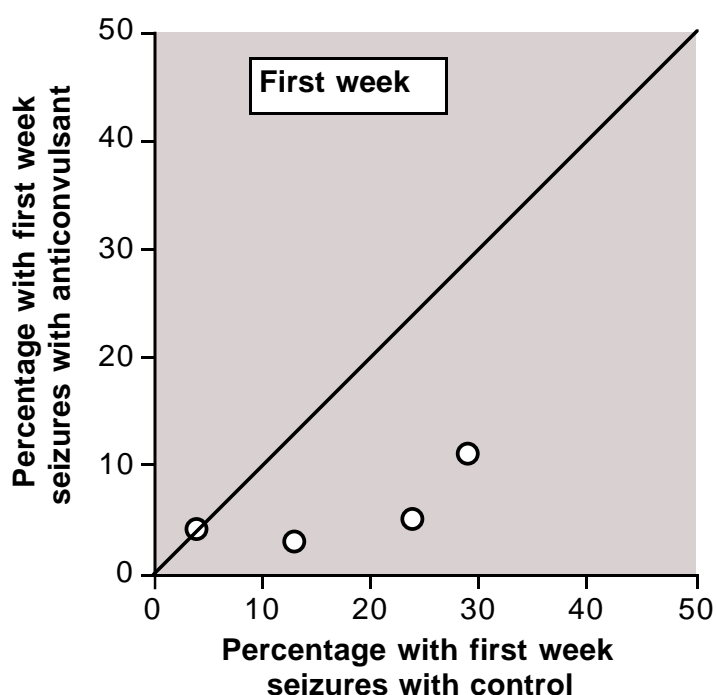
Comment

The reduction in early seizures is useful, but there is no evidence that anticonvulsant drugs used at any time beyond one week after head injury reduce death or disability.

Reference

- 1 G Schierhout, I Roberts. Prophylactic antiepileptic agents after head injury. A systematic review. *Journal of Neurology, Neurosurgery and Psychiatry* 1998 64:108-12.

Seizures in patients with head injuries



LIFESTYLE AND HYPERTENSION

It has long been known that restricting sodium intake and losing weight can result in reduced blood pressure. Do we just play lip service to this? Can interventions to help people accomplish these twin goals be effective in reducing the need for antihypertensive medicines? A new US study suggests that nonpharmacologic therapy in older persons can indeed reduce the need for antihypertensives [1].

Study

This was a complicated study. It involved 585 obese participants randomised to usual care, or sodium restriction, or weight loss, or both, and 390 non-obese participants randomised to usual care or salt restriction. All participants (mean age 67 years) had to have a systolic BP <145 mmHg and a diastolic BP <85 mmHg while being treated with a single antihypertensive medicine.

Participants received lots of help to achieve set goals (reduction of salt intake to 80 mmol/day or less; weight loss of 4.5 kg or more), and to maintain them. The goal was to withdraw the antihypertensive medicine after three months of the intervention if blood pressure could be maintained at less than 150/90 over six weeks following withdrawal.

Outcome

Diagnosis of high blood pressure (>190/110 at a single visit) at one or more follow up visits, or treatment with antihypertensive, or a cardiovascular event during a median 29 months (range 15-36 months) of follow up.

Results

At the nine month follow up, 36% of the 443 participants assigned to sodium restriction and 11% of those assigned to usual care had urinary sodium of 80 mmol/day or less. The average fall of about 40 mmol/day was maintained over 30 months in participants assigned to sodium reduction.

Of those assigned to weight loss, 47% of 275 participants had losses of 4.5 kg or greater, compared with 13% of 260 not assigned. Over six to 30 months the average weight loss of 4 to 5 kg was maintained in the assigned group.

The majority of participants were able to have antihypertensive medicine withdrawn initially (Table). Thereafter the number declined, but even at 30 months after withdrawal there was a significantly greater number not taking antihypertensive medicine with either sodium restriction, or weight loss, and especially with both.

The figures imply a NNT for either sodium restriction or weight loss of 5, and for both sodium restriction and weight loss of 3 in obese participants.

Adverse effects

A number of strokes, transient ischaemic attacks and cardiovascular events occurred - with no differences between the groups, nor between different stages in the study. Sodium restriction was associated with a significant reduction in the rate of headaches.

Comment

Antihypertensive medicines in the elderly are effective (*Bandolier* 15). The overall NNT to prevent one cardiovascular event was 18 (95% CI 14 to 25) patients to be treated for five years. To prevent coronary heart disease the NNT was 61 (39 to 141) and to prevent cerebrovascular disease the NNT was 43 (31 to 69).

Many patients might prefer not to take medicines which have adverse effects. The results of this study on sodium restriction and weight loss might encourage some of them to try nonpharmacological interventions first. Delivering the right advice and support will be a challenge, however.

Reference

- 1 PK Whelton, LJ Appel, MA Espeland et al. Sodium reduction and weight loss in the treatment of hypertension of older persons. Journal of the American Medical Association 1998 279:839-46.

Effect of sodium restriction and weight loss on withdrawal of antihypertensive medicine

Assignment	Number	Antihypertensive withdrawn	No anti-hypertensive at 12 months	No anti-hypertensive at 30 months
			Percent	
Usual care	147	87	32	16
Sodium restriction	144	93	56	36
Weight loss	147	93	54	35
Both	147	93	58	44

PSORIASIS TREATMENTS

Psoriasis affects about 2% of Caucasian populations, and first line treatments include topical preparations like steroid creams and tar. Where topical treatments fail, systemic treatments are used. These include phototherapy with ultraviolet B, or with ultraviolet A in combination with psoralens (photochemotherapy). Oral retinoids such as acitretin or etretinate, or even cyclosporin A may be used.

Which is the most effective? A systematic review [1] may help in choosing treatments and organising programmes.

Review

The searching strategy for this review was exhaustive. Studies reporting on the ability to induce remission in adult patients with chronic plaque-type psoriasis were selected, irrespective of randomisation. Combination therapies were not examined, nor conditions other than chronic plaque psoriasis. Studies which used obsolete or extreme dosing schedules were also omitted.

Even so, this left 665 studies (with 48 of them duplicated). Only one third of these were randomised, but there was information on 13,700 patients.

Outcomes

Treatment outcome was documented by the ability of the treatment to induce remission. This was graded as clearance (95-100% improvement in outcome parameter compared with baseline), good response (75-100% improvement), moderate response (50-75% improvement) and poor response (<50% improvement). Outcome parameters often used were psoriasis area and severity index, average global scores, and percentage of body surface area involved.

Results

The results are shown in the Figure for five treatments. Most information was on photochemotherapy, where the weighted average clearance rate was 70%. Ultraviolet B was also good, but other treatments were less good at producing clearance.

Adverse effects

The number of reported adverse effects per week of treatment was generally low, and was higher with the retinoids acitretin and etretinate than with ultraviolet or cyclosporin. The major adverse effects were mucocutaneous. The number of patients who stopped treatment for any reason varied between 6% and 22% for the different therapies.

Comment

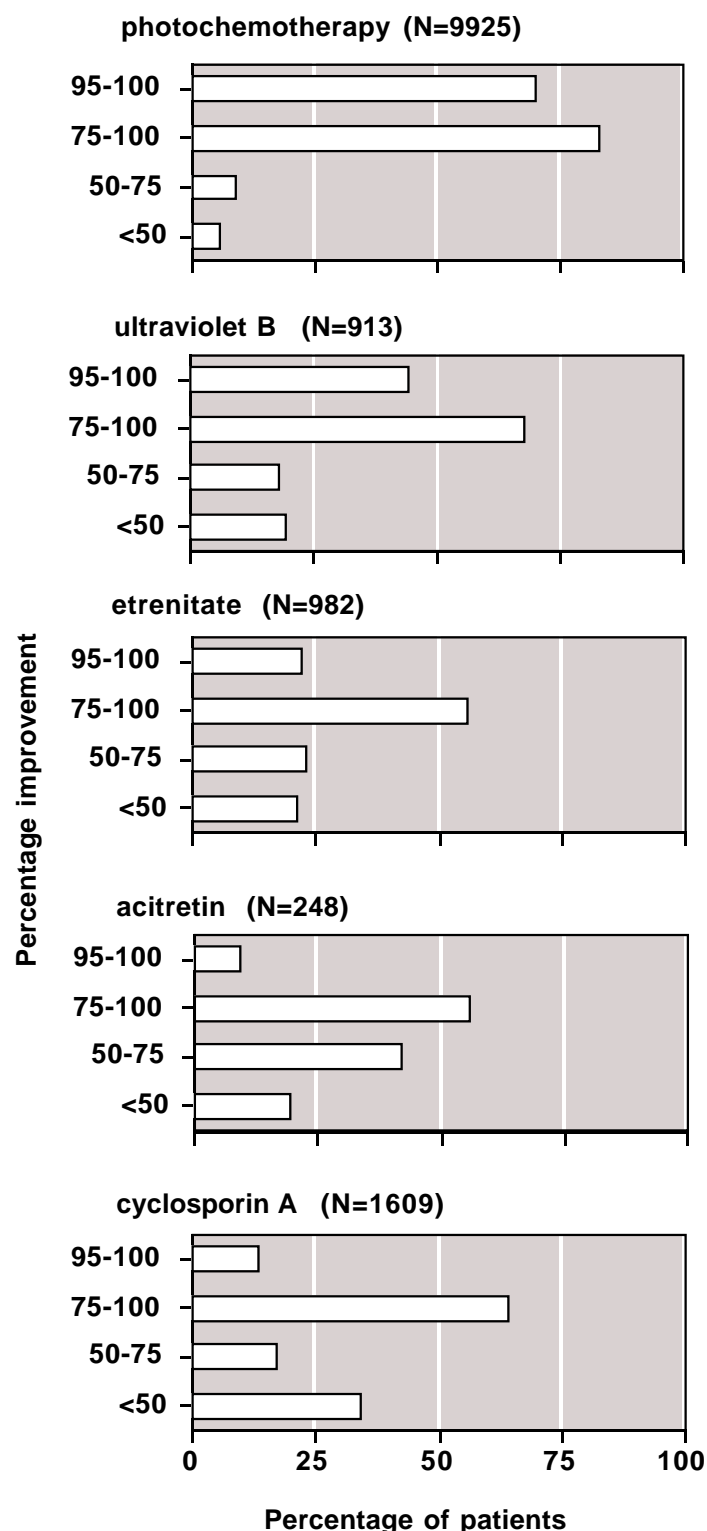
This type of analysis is clearly subject to bias, since it includes non-randomised studies. The authors point out their difficulty in ensuring that patients had similar degrees of severity of psoriasis. They also point out that the clear differences between phototherapy and oral treatments reflect the differ-

ence in treatment goals. With the former it is full remission, while with the latter it is to induce remission while keeping adverse effects to the minimum by using the lowest possible oral dose.

Despite these caveats, this is an interesting review which could form the basis of treatment guidelines while pragmatic studies comparing the different therapies in head-to-head comparisons are awaited.

Reference:

- 1 PI Spuls, L Witkamp, PM Bossuyt, JD Bos. A systematic review of five systemic treatments for severe psoriasis. *British Journal of Dermatology* 1997 137:943-9.



HOMEOPATHY AND POSTOPERATIVE ILEUS

Homeopathy gets people hot under the collar, whether they are for it or against it. Many will say that it is ridiculous to expect a solution diluted beyond any possibility of an original molecule of the active material being there to have any effect. The principle of homeopathy is the more dilute the remedy, the more potent its action.

Postoperative ileus

In some conditions, migraine, for instance, there may be a number of remedies to hand. For others, like postoperative ileus, there may be few. So a meta-analysis of the use of homeopathy for postoperative ileus which has a positive conclusion [1] is of interest.

Searching

Searching was comprehensive. To be included studies had to be randomised, include a placebo control, be in patients who had undergone abdominal or gynaecological surgery, and have data for analysis by weighted mean difference methods. The homeopathic remedies used were opium or *Raphenus sativus* principally, though some additives were used.

Outcomes

Time to first flatus was the principal outcome that the authors were interested in, although there is data on time to first faeces also.

Results

Seven trials were found (four published and three published only as theses), and information from six of these was suitable for analysis. The seventh study showed no difference in outcome between homeopathy and placebo.

Results are shown in the L'Abbé plots. Overall there was a significantly reduced time to first flatus by 7.4 hours (95% CI 10.8 to 4 hours), and this was seen also for four (larger) studies of the highest quality.

Comment

Despite the fact that different homeopathic remedies were used at different dilutions, in similar patients and with the same outcomes, homeopathy appeared to be effective. One caveat might be that the largest study showed no difference. Another might be that studies with the highest dilution (and therefore more potent by homeopathic wisdom) showed less effect than those with lesser dilution.

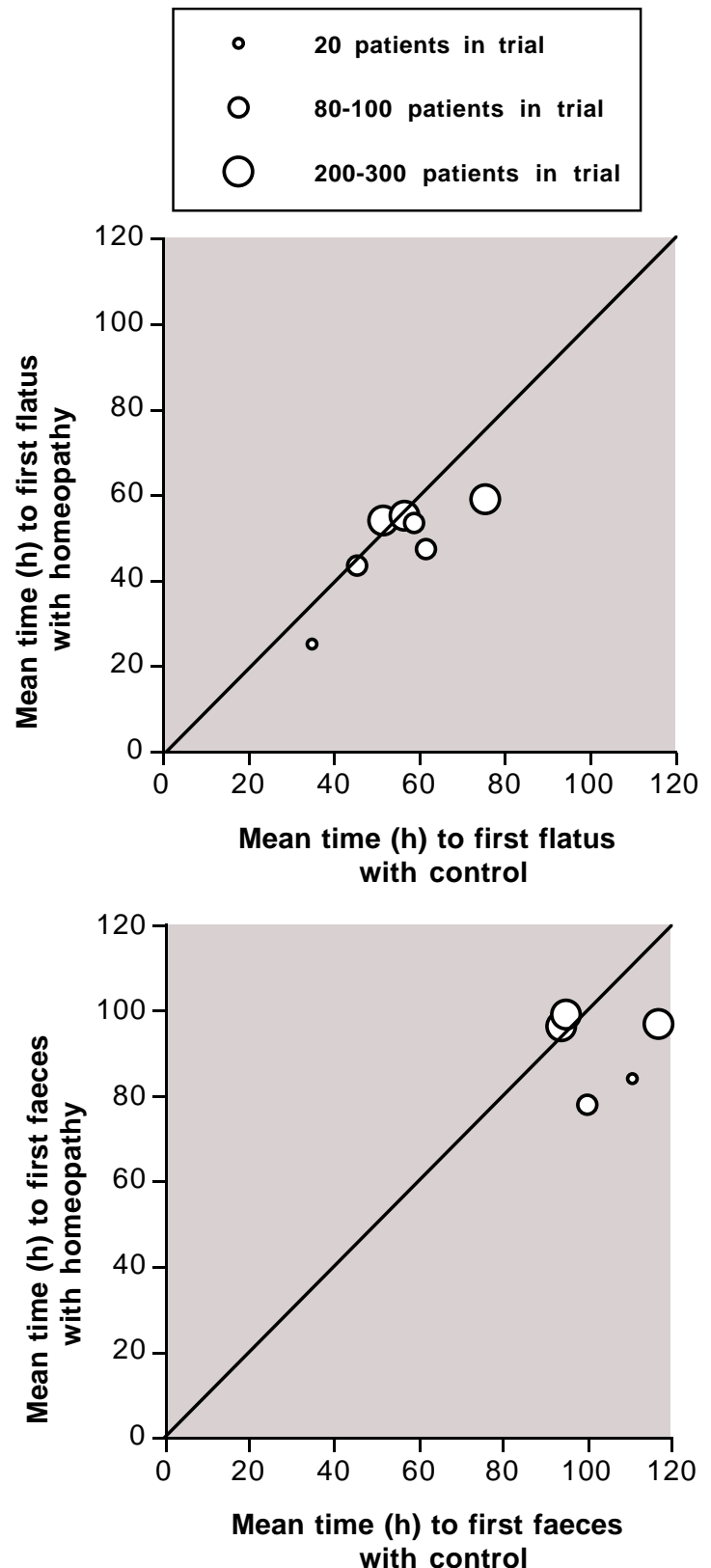
Could this be a statistical freak? This is somewhat difficult to say, because full details of the studies included are not given, and as three of them are unpublished, they may be difficult to obtain. On the face of it, there seems

to be an effect, which might, just, be clinically as well as statistically significant. But how this might be incorporated into clinical practice is another matter.

Reference:

- 1 J Barnes, K-L Resch, E Ernst. Homeopathy for postoperative ileus? *Journal of Clinical Gastroenterology* 1997 25:628-33.

Randomised placebo-controlled studies of homeopathy for postoperative ileus



MOORHENS AND MALLARDS

Bandolier is often written overlooking a pond which is home to a pair of Moorhens (at least we think they are Moorhens; we are told that Moorhens have yellow beaks and Coots white). Occasionally the pond is visited by some Mallards. Moorhens are aggressive little chaps, and the Mallards don't stand a chance - they get seen off even though the pond could easily support a pair or two.

There are a lot of papers written about evidence-based medicine, NNTs, health economics, and ways to treat patients, or run the NHS. Many of them seem to take a Moorhen approach to the problem - that of trying to see off all opposition. This is a pity, because life isn't simple, the NHS isn't simple, and decision-making with individual patients isn't simple.

Tools and toolboxes

The various methods we use, statistical, representational, or economic, all have their strengths and weaknesses. They are tools we have at our disposal to use when and where appropriate. Just as we would not try to take a wheel off our car with a screwdriver, there will be situations when statistical or economic tools are inappropriate.

Ninety-eight percent of health economic evaluations are bunk. Now that is a strong statement that will make a few readers sit up. One might try and justify such a statement by saying that most economic evaluations are based on single trials, and that single trials, if small, are unrepresentative and may not give the "true" size of an effect. Economists might respond by arguing that careful accumulation of cost data best informs economic analysis.

Baying for the moon

But the point, surely, is that what we have is what we have. We must strive for the best while accepting that we may not have it right now, but get on and do the best we can anyhow.

Thoughtful words

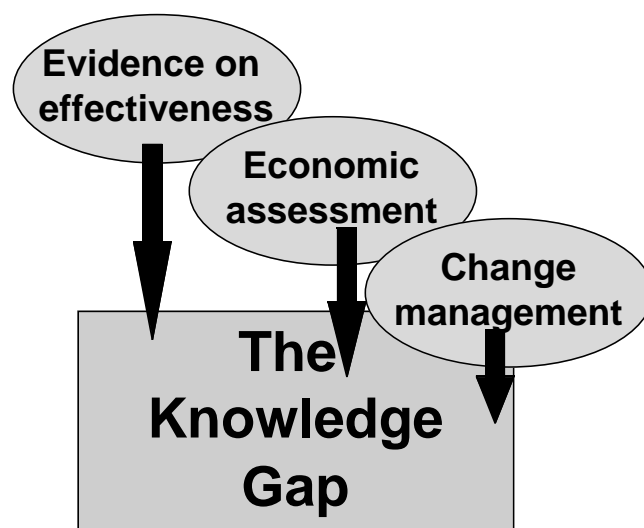
Alan Maynard's 1997 essay [1] sought to argue that using best evidence for the treatment of *individual* patients may not be the best value for society from a fixed-budget health service. It seeks to (and does) pour some cold water of reality on what some people consider an over-idealised concept.

Jack Dowie makes a plea for decision analysis based medical decision making [2]. *Bandolier* finds his thesis not unattractive, and decision analysis can shed an interesting light on problems because, at least to some extent, it takes a broader look at costs and consequences.

But Dowie gives NNTs a rough ride - "an intrusion of population-based reasoning into clinical decision-making" [3]. Some interesting arguments, best read in conjunction with workers who reach a very nearly opposite conclusion about the use of numbers needed to treat and harm in cost effectiveness studies [4].

Real world

Bandolier has tried to avoid being a Moorhen here. These papers have good and bad points - the latter reflecting mainly the propensity to see problems everywhere. Sure there are problems, there always will be. The point is to get on and solve them, rather than moaning that they exist. And the real world changes. When the NNT is the outcome measure that GPs feel most able to understand and explain to others [5], we probably should work on reinforcing success. We need to use all the tools in our toolbox to fill the knowledge gap (Figure), and not be afraid of allowing a few Mallards to share our pond.



References:

- 1 A Maynard. Evidence-based medicine: an incomplete method for informing treatment choices. *Lancet* 1997 349:126-8.
- 2 J Dowie. Evidence-based, cost-effective and preference-driven medicine: decision analysis based medical decision making is the pre-requisite. *Journal of Health Services Research and Policy* 1996 1:104-113.
- 3 J Dowie. The number needed to treat and the adjusted NNT in health care decision-making. *Journal of Health Services Research and Policy* 1998 3:44-9.
- 4 M Schulzer, J Mancini. Unmitigated success and unmitigated failure: number-needed-to-treat-related concepts for assessing treatment efficacy in the presence of treatment-induced adverse effects. *International Journal of Epidemiology* 1996 25:704-12.
- 5 A McColl, H Smith, P White, J Field. General practitioners' perceptions of the route to evidence based medicine: a questionnaire survey. *British Medical Journal* 1998 316:361-5.

EDITORS

Dr Andrew Moore
Dr Henry McQuay

Dr J A Muir Gray

Pain Relief Unit
The Churchill, Oxford OX3 7LJ

Editorial office: 01865 226132
Editorial fax: 01865 226978
Email: andrew.moore@pru.ox.ac.uk
Internet: <http://www.jr2.ox.ac.uk/Bandolier>

ISSN 1353-9906